

Content and Meaning in Abstract Animation

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Pamela Taylor Turner
Assistant Professor, Kinetic Imaging
Communication Arts and Design
Virginia Commonwealth University

Introduction

Abstract imagery – forms pulled from observed objects, pulling inner meaning out, going beyond the quest to re-present what has already been presented. To create such imagery is an inherent tendency in human nature, albeit one that is often sidelined for more auspicious visual illusions such as realistic rendering of real humans in unreal narratives. Not that these visual achievements aren't appreciated - they, too, have their place. But what about the 'unreal' or, more accurately, the 'ultra-real', internalized sector of individual experience?

Talking about the content and meaning of abstract animation, for the practitioner or enthusiast, is like discussing why one eats chocolate or why we stand at the edge of the ocean, experiencing the sensation of the sand being sucked out from under our feet by the pull of the receding wave. Or why listening to a beautiful adagio can create such a stirring response. These experiences stand for themselves and need no explanation.

For the uninitiated, or the viewer who has little to no encounter with abstract animation, however, these moving images can be initially disconcerting and hard to understand. If these are 'moving pictures' what are they pictures *of*?

Think about music. It can be considered the most abstract of arts, with each composition having its own structure, melody, and rhythm – its own arrangement of notes. These sounds are not representational (although some classical compositions have included bird sounds or alluded to sounds in nature) but rather, they are arranged to create an aural experience. This analogy has been useful for abstract animators, as pure forms – points, lines, planes – can, like notes, chords and scales, be arranged in time and space, free from the limitations of representing objects which already exist. Music creates an aural arrangement that could only exist with its performance, and non-objective animation creates an equivalent visual composition. It shows what cannot be seen and what can be best expressed in the syntax of sequential imagery, not as sound, text or objects.

Len Lye conveys this idea wonderfully. "One morning it had been raining all night, and there were these marvelous fast little skuddy clouds in the blue sky. As I was looking at those clouds I was thinking, wasn't it Constable, the English landscape painter who sketched clouds to try to convey their motions? Well, I thought, why clouds, why not just motion? Why pretend they are moving, why not just move something? All of a sudden it hit me – if there was such a thing as composing music, there could be such a thing as composing motion. After all, there are melodic figures, why can't there be figures of

motion? ... So I started running around wagging my tail, thinking I have a nice idea; anyway, I've stuck with it ever since.”¹

Abstract imagery is closely related to both music and ritual throughout history. From the earliest renderings found on cave walls and rocks, abstract forms were used to record events, illustrate concepts, to mark tribal identity - to indicate significance. There are many theories as to the meaning and use of petroglyphs and pictographs. Were they placed in remote areas of the cave for ritual purposes, brought to life by the dancing flame of a torch and the ingestion of trance inducing plants? Were petroglyphs etched into rocks at key locations selected because it provided the best sonic environment for song and chant? What is known, through anthropology and archeology, is that the use of abstract imagery and sound is a distinguishing feature of being human, whether it is to evoke mystical experience or to create order and meaning through abstracted geometric patterning. The continued development of this imagery is evident today in textiles and pottery from cultures that have sustained their tradition of abstract connotation. This can be seen in the brightly colored patterns of the Kuna Indians' mola cloth, which are sewn to the backs and fronts of their blouses, replacing the body paint which was once their adornment(see fig. 1). Contemporary Native American pottery and textiles, such a seed jar by artist Toya Jimenz, also continue a tradition of abstracting natural phenomena and objects into sophisticated geometric form. (see fig.2)



Fig. 1. Mola cloth, native textile from Kuna Indians of Panama



Fig. 2. Seed jar, by Toya Jimenz

The impetus to communicate, to express inner experiences, visions, is a natural outcome of our creative impulse. Other ways of seeing the world, or ways of seeing other worlds, is the visual freedom that abstracted moving images allow. This drive to create abstract forms is often partnered with the presence of music, as music itself is an abstracted form of expression. We see a somewhat uninformed continuation of this impulse in the contemporary raves, dance club graphics and interactive music/image environments. Is this a desire to return to the ritual, trance states of our ancestors? We could only hope!

Defining abstraction

So, what are the boundaries used to define an animation as abstract or not? As already stated, the term “abstract” does not necessarily exclude representational imagery as it implies that its images are pulled or *abstracted from* recognizable forms, often leaving little to no reference to the original subject. There are also the designations of “non-objective” or “absolute” or “concrete” animation, which does NOT include references to recognized forms but instead employs imagery completely liberated from icon and symbol, and utilizes instead form, light, color, movement and time. Even when images are purely non-objective the individual viewer may sense images, as one does when staring at the clouds. In practice, the line between the categories of abstract and non-objective is blurred, and is not critical in this context as most artists do not have as their objective to ‘fit’ a described genre, but rather to follow a drive, an impulse, or to follow a line of visual, and sometimes mystical, exploration. It is this artistic intent that groups these works together. This being said, the terms ‘abstract animation’, absolute or concrete animation, visual music have all been used in the effort to define this genre and will be used interchangeably throughout this paper.

Being drawn solely from the imagination, absolute animation can be, for many, the most demanding to view. However, these works can also be spectacular, inspiring, and even transcendental. Any impediment stems from the audience’s expectations, formed largely through commercial or popular animation, which, of course, is narrative in structure and features characters or subjects. The viewer expects to see a story as he or she sits in the movie theater and gives their full attention to the screen. This can be problematic in that they have been conditioned in that situation to ‘read’ the meaning of the work as a story-based sequence. The action is scripted and edited such that cuts and dialog take us in a very time efficient manner through the establishing scene, the setup, the climax, and, finally, the resolution. This, of course, is not the grammar of non-narrative work.

What is the language, then, of abstracted moving images and why does it seem so unfamiliar to the uninitiated? Why is it difficult to find meaning or content in non-representational animation? As the colors and patterns dance across the screen they begin to ask ‘where is the story?’ ‘What does this mean?’

There is no story, or narrative, per se, but to say it does not have meaning or content is far from accurate. Instead, the use of abstract or pure moving imagery enables the expression of content and meaning that is not possible within narrative, representational imagery or media. The inner world, imagined or experienced, is the vast landscape that is being explored. The meaning of the film is not spelled out – it, like music, is experienced.

The return of the abstract

With the new emerging theories of relativity, archetypes and the unconscious, the concept of a concrete, quantitative reality of the ‘rational and enlightened’ scientists and philosophers crumbled into specks of particles on a shifting field. This rational way of thinking and behaving resulted in a civilization that had achieved highly representational art, advanced beyond far the primitive bold, primitive dots, dashes and planes which lacked true proportion and perspective. Or, that was the implication.

Abstract imagery was reintroduced into the modern art vernacular in the early 20th century as ‘primitive’ art, such as carved masks and other tribal artifacts, and folk art became the focus of such diverse artists as Pablo Picasso and Wassily Kandinsky. Ideas questioning reality and perception were developing in physics and psychology as well, contributing to the unfolding zeitgeist of the time. Painting became a way to explore the inner perception of the subject or to simply convey graphic events of the freed imagination. Objects disappeared and pure elements of color, form, plane and movement commandeered the canvas. The purpose of this imagery was not to depict but to express. Its subject was experience. The process of creating the work was considered as essential as the imagery itself. This idea took on many forms, and was adopted by numerous art movements, with the resultant imagery and theories being recorded in profuse theoretical writings and manifestos.

Wassily Kandinsky, an extremely influential artist and writer, offers much insight into these emerging thoughts and perspectives on art. In his short autobiography Reminiscences, Kandinsky describes the turning point where he recognized art as an entity that does not have to represent nature, as he was frustrated with attempting to resolve art and nature. His solution was in the realization that nature and art were two separate but equally powerful entities. This insight freed him to greater appreciation and experience of both, as he describes, “... everything shows me its face, its innermost being, its secret soul, which is more often silent than heard. Thus every still and moving point (=line) became equally alive and revealed its soul to me”.²

Kandinsky’s description of his liberated experience of ‘the secret soul’ and the ‘innermost being’ of things as experienced by him is an essential element in understanding the work of expressionist art and of abstract animation, as the artist no longer feels constrained to represent nature or real things. Concerning the Spiritual in Art (1911), a key book by Kandinsky, is devoted to this topic, that art is no longer about the material but instead focuses on “...the internal truth which only art can divine, which only art can express by those means of expressions which are hers alone”.³

His book Point and Line to Plane⁴ (1926) gives us a clear and detailed picture of his theories regarding composition, with the precision almost of a mathematical equation. (Although he balances this with a clear warning about avoiding set formulas.) Points and lines (points in motion) on a plane (a line in motion) and the relationships between these elements are described using terms such as sound, harmony, force, and tension. In the time it was printed, and even now, this is quite an extraordinary analysis.

What is abstract animation?

Animation is the ideal medium through which to explore the dimensions of the inner world, the “internal truth” and to explore the possibilities of pure, kinetic, graphic elements. It allows the liberated imagery of the static arts, as referred to above, but with the added dimensions of time and motion. Here we can literally see the point moving, creating a line as it arcs across the plane; a plane that is implied by the movement of the line or other visual elements’ movement. The artists’ creation is allowed to unfold, to

morph and mutate, to transcend, and to allow the spectator access to this vision. The viewer, too, engages in an individual experience as their mind wanders with the imagery and sound, then concentrates as it is stimulated by a distinct rhythm, color, motion, and finally flows with the encounter of the whole.

These animations are usually viewed in darkened rooms or theaters, which invites an illusion of privacy and immersion as the projected kinetic imagery fills one's field of vision. However, the difficulty of categorizing this 'genre' has meant that these pieces often are viewed prior to a feature film (in a film festival *not* at your local Regal Theater Complex) or in the context of narrative animations. This can create problems, as the expectation of the viewer is not geared towards experiencing an abstract work, which entails a different attention than a narrative work. These pieces are often referred to as 'experimental animation', which is not entirely incorrect, as many of these animations *are* experimental perhaps in their unorthodox technique. But the more pertinent factor is the intent of the artist and the resultant content. Even the intent can be vague, as it is most often defined by what it *is not* rather than what it *is*. It is *not* an attempt to imitate what is readily visible.

Structure and Grammar

As mentioned previously, animation shares many formal qualities of modern abstract painting. An obvious difference is, of course, the addition of motion in time, beyond the implied kinetics on a fixed plane. Actual time, motion, and sound extend the possibilities of abstract expression. The color is different too as the images are made with projected light, or the electronic light of a video monitor, and not the pigments of paint.

It is also useful to acknowledge the differences in language and grammar of this form of animation from representational, narrative styles. These differences are, of course, the result of one giving us a figurative version of reality and the other creating an alternate "reality" or world of experience.

Representational animation uses many of the conventions and techniques of cinema. The structure and pacing of the action is designed to engage the viewer with a drama of sorts and this requires the manipulation of time. Nothing in popular animation or film happens in real time. Time is compressed, using cuts, wipes, or other transitional devices to move from scene to scene, or through time as necessitated by the story. On some occasions, time is stretched, with the use of slow motion effects or with simultaneous events being shown at different times in the sequence of the film. Characters talk or a narrator speaks. Camera angles are used carefully to create point of view in order to convey the relationships of good guys, bad guys, and the viewer.

The grammar of abstract animation is not a narrative construction, but as mentioned earlier, a composition more akin to a music score. A visual form may grow and evolve, accelerate then soften to a subtle lingering form, and perhaps change to its ultimate state of being, and then fade away. Time itself is often suspended, reducing the need for cuts or other space/time transitional devices.

Instead we see dissolves, fades and a fixed camera position. Even when the animation camera does technically move, it is often to create the illusion of moving imagery, more so than to indicate movement of the viewer.

On observing abstract animation

So how is the experience of watching absolute animation different from watching a more classical, narrative style of animation, in which we recognize characters, objects, and can follow a story? How can these be interpreted if they do not seem to have a beginning, middle and an end? What is it *about*? They simply require a different kind of attention, a different set of expectations.

It would be helpful to place oneself in the context of hearing music or experiencing images, such as patterned, vivid textiles, as Sara Petty, whose lyrical animations allude to the magic in everyday life, explains. “There are many kinds of personal, experimental, offbeat, perceptual and abstract films and infinite understandings of them. It might help to compare an 'abstract' film in which there are no figures to a piece of music in which there are no lyrics. Or to a craft, such as textiles or quilts, in which design, color and rhythms are vivid and enlightening without need for interpretation. The subject matter of a Bach etude may be its structure or composition, an emotion, or an aesthetic fascination. (Maybe the need to make arrangements in sound, image or object is a genetic trait, like a need to solve puzzles!)”⁵

The experience is not structured to take the viewer on a step by step directed path, but rather they are allowed to explore and experience the animation, so that it may evoke a kindred, yet individual encounter. This individual aspect of the film is due to the fact that each viewer brings his or her own experience to the animation. Abstract animation, as with all abstract art, requires the participation of the viewer.

Another aspect is that these animations can be viewed numerous times as each viewing will reveal a different aspect of the experience, based on many factors, but primarily on the viewer's mind set, previous encounter with the animation, and memory of the animation. Again, a useful analogy here is music. As Larry Cuba, a renowned computer animator and artist, observes, that unlike a movie, which has a story and an ending, people often play their favorite music over and over. The same is true of abstract animation. He points out, “... once you know how it ends and that's not a mystery anymore, you're not thinking about the end...you're not thinking about how long it is and you're not thinking about where's this going to go ... you're experiencing it moment to moment like you would music.”⁶

Now that we know what it is how did it get here?

To better understand this area of animation, its diverse genealogy should be reviewed. This heritage includes that of modern painting, but also other influences that are less acknowledged, such as theater and music, and, of course, animation itself.

From its earliest conception animation was connected with illusion and magic. Drawn, still images or lifeless objects could be brought to life. Animation toys such as the zoetrope, thaumatrope, and the phenakistoscope, delighted adults and children alike. Their amazing ability to create the illusion of life earned them the title “philosophers’ toys”.

The vastly popular magic lanterns, used in public performance as well as for private entertainment, projected a wide range of still images, from simple stories and visual puns, to moving images known as chromotropes. Many chromotropes were of layered abstract imagery, that rotated as a handle on the slide was turned creating an intriguing kaleidoscopic effect.

In the area of performance arts, there were artists who explored the connection between color and sound. The resultant art form, referred to as ‘Visual Music’, or ‘Color Music’ sought a system of connecting sound and image, initially using a direct color-to-note correlation.

In 1730 Father Bertrand Castel invented and performed on one of the earliest instruments created for the purpose of changing colored light in synchronization with music. This instrument, known as the Ocular Harpsichord, was a ‘prepared’ version of the harpsichord, with cables and pulleys controlling small doors, which would open when its corresponding note was struck. The open doors revealed various colored lights and were quite a unique spectacle for that time period. Castel had a system in which each note was assigned a specific color. His reasoning behind his system was based on a religious interpretation, in which Middle C was assigned the color blue. Blue, he determined, was God’s favorite color, being the color of the sky and the seas and therefore it should be assigned to the most prominent note on the scale.⁷

Father Castel’s work depended on candles, and a lot (reportedly 500) of them. The advent of electricity offered more possibilities for light and color artists who also invented their own unique apparatus for the purpose of correlating sound and color. Mary Hallock Greenewalt, a concert pianist and inventor, created various versions of her light color instrument, the “Sarabet” which she created and continued to improve from 1911 to 1931. In the process of improving this instrument, she invented the rheostat dimmer and the liquid mercury rotary switch.⁸ Despite her inventions and her elaborate book, Nourathar: The Fine Art of Light Color Playing,⁹ which championed her work, she did not receive acclaim for her creation, but instead had to fight legal battles to protect her patents and her reputation as an inventor.

Thomas Wilfred was a much more popular and successful competitor to Greenewalt. Wilfred began as a singer, but upon immigrating to the United States from Denmark, he abandoned professional singing to begin experiments in color performances as visual equivalents to music. Unlike Castel and the earlier “Color Music’ artists, Wilfred did not adhere to the idea that color must follow the musical note system, with a color assigned to specific notes. Instead, Wilfred worked with the belief that color and form were a system in their own right, akin to music but independent of its rules and structures. His

goal was to explore this idea and in doing so he created a new art form, which he named “Lumia”.

Wilfred’s Lumia instruments were well received in public performance. He was in such demand that he created a ‘home use’ version of the performance instrument so that everyone could have his or her own visual music experience. Images produced by these instruments are mesmerizing, not unlike the fascination one feels when gazing into a colorful, dancing fire. Colors change and twirl, morph and fold, in a fantastic holographic, spatial illusion.

Film, and projected ‘real-time’ imagery such as oil-wipe, carried this tradition into the 60’s and 70’s. Video technology offered yet another opportunity to continue this exploration, as music and image making technologies began to merge. The Fairlight CVI (Computer Video Instrument) from 1984 was one of the first real-time performance instruments, a synthesizer, which combined the creation of sound and the manipulation of video imagery. From the ‘80’s on the digital computer became the focus of ‘visual music’ experiments. Now, in the 21st century we have computers that are accessible to independent artists that are capable of real-time sound and image performance. Ironically, many artists using these digital tools seem to be completely unaware of the rich history of visual music that precedes their efforts.

Another path of ‘visual music’ does not have real-time performance as its goal, but rather recorded compositions, such as film. One of the earliest and perhaps the most influential artists in this category is Oskar Fischinger. Born in 1900, Fischinger instinctively gravitated to animation and, unlike other animators, especially those from the first half of the 20th century, he produced animation *before* he took up painting. He only turned to painting, which he did for the last 20 years of his life, when he determined that animation would never be a lucrative venture for him. Fortunately for us, he had produced a number of amazing animated films before he made this decision. He also contributed to the live performance tradition, with his invention, the Lumigraph, which was made of a taut sheet of flexible material, lit from the sides with various color lights. Operated on a completely darkened stage, the ‘performers’ would create imagery by using their hands, or objects, to push and release the material into the path of the various lights creating a mysterious play of color, form and movement.

Fischinger, like the visual music artists and the ensuing abstract animators, had to create many of the technologies they needed to give form to their vision. This spirit of exploration, and research, led to the techniques of painting on glass, as in Motion Painting No. 1 (1947) and devices to use for controlling objects, such as the circles and other geometric forms in Composition in Blue (1935). He also developed a wax slicing machine, which he used to create sequential images by revealing patterns and forms embedded in blocks of wax, through the methodical slicing.

Norman McLaren, Len Lye and Harry Smith painted directly on clear leader, in lieu of exposing film in the camera. They each finessed this difficult technique to create rhythmic, colorful, and wildly energetic films. Painting on, and scratching on, exposing

the film with objects blocking areas of the film (like rayographs or photograms) – these were some of the many means utilized to make a projected moving image that captured the spirit and intent of the artist.

This inventive nature can be evidenced in the work of John Whitney, Sr., who was a master at creating his own instruments for the purpose of creating and controlling image and sound. Whitney created a pendulum device, his “subsonic sound instrument” or pendulum sound recorder which did not emit the sound but rather created a controlled pattern which was exposed onto the film’s optical sound track to generate the sound when played through a projector.¹⁰ (Fischinger and McLaren as well had devised systems for using images to produce a sound track.) He also ‘re-purposed’ an anti-aircraft gun director for use as his animation machine, a mechanical analog computer, which is the basis of the first motion-controlled camera. This device allowed an interesting combination of computed movement with hand-drawn images or templates, creating imagery, such as his Catalog (1961) that appears to be generated on a digital computer, using algorithms, but is not. Permutations (1968), a mesmerizing dance of point and line in space, is Whitney’s first digital computer film (1975).

The connection between abstract animation and science cannot be ignored. Emerging technologies, such as electricity and film, video and the computer, have allowed more possibilities for the artist working with moving imagery and light. In addition to the technology, the *ideas* and developing theories in science, math, physics, chemistry, biology, and astronomy had a profound impact on the creative musings of the artist. This relationship between art and science can be traced back to the writings of Aristotle, Leonardo, and Sir Isaac Newton. Newton’s “Opticks” from 1704, proposed a system of color and sound relationships.¹¹ Goethe, a poet and scientist, also contributes to this lineage of thinking with his Theory of Colour, first published in 1810. With the advent of the 20th Century, groundbreaking theories in the sciences, such as Einstein’s relativity, quantum mechanics, and later quantum physics, further ignited the imagination and ideas of the ‘new century’.

The “what” of abstract animation

The flow of immigration to the United States at the turn of the century, and later accelerated by World War I and World War II enabled the spreading of ideas and of new ways to interpret the world. The influence of Buddhism, Hinduism, and Taoism, with their distinctive philosophies regarding the metaphysical and transcendental essence of all things and the focus on the intuitive intellect, spread into the western arena, quickly absorbed by artists and writers. The mandala images of the eastern philosophies meet with the sand painted mandalas of the Native America west. In a world gone awry, inner enlightenment and the search for stillness and completeness through meditation were welcome alternatives, finding resonance with the artist whose interest lay in expression and exploration of unseen forces and not in perceived reality. The very idea of ‘reality’ itself was questioned and examined in the various sciences, whose boundaries more and more overlapped.

The arts were freed from representation by a new age that acknowledged the existence and the validity of the irrational. New visual forms were given to ideas or visions that verbal language could not address and that representational images could not convey. Animation, which in the narrative realm brought to life fictional worlds, was the perfect medium to create, or to convey, inner-experienced and transcendental worlds. Jordan Belson and James Whitney are two artists known for their extensive engagement of the ideas and perspectives of eastern thought.

The mystical aspect of reality is obvious in the imagery of the films and is acknowledged in many of the titles, such as Belson's Mandala (1953), Samahdi (1967), and Chakra (1972) and James Whitney's Yantra, (1955), Lapis (1966) and Wu Ming (1977) (see fig. 3,4). This content, as Belson describes in Gene Youngblood's Expanded Cinema, is not represented as imaginary but rather an attempt to relate an experience, a state of being.

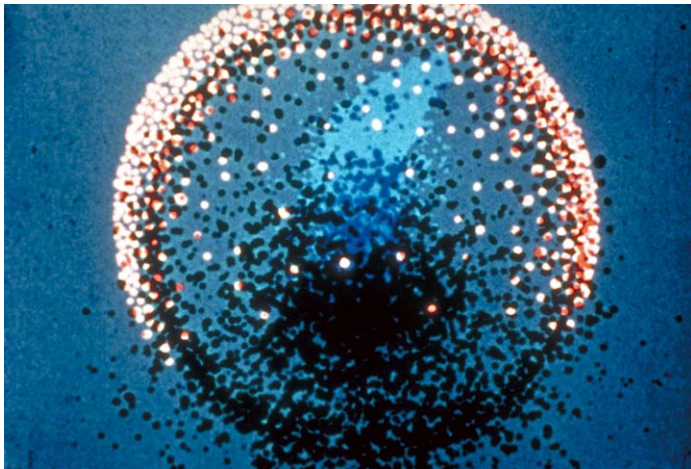


Fig. 3. Still frame from James Whitney's Yantra
Courtesy of The Estate of John and James Whitney and The iotaCenter
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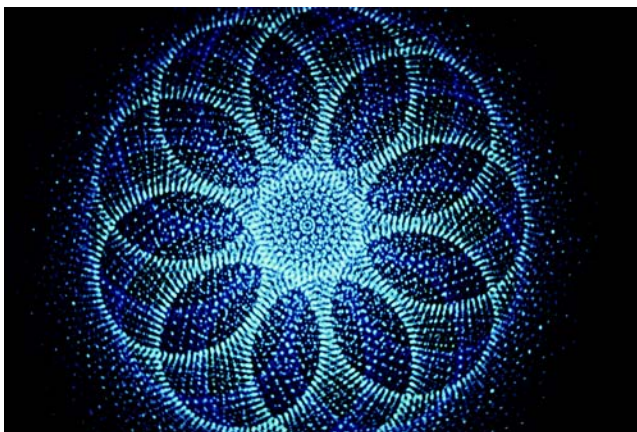


Fig. 4. Still frame from James Whitney's Lapis
Courtesy of The Estate of John and James Whitney and The iotaCenter
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"I first have to see the images somewhere," Belson says, "within or without or somewhere. I mean I don't make them up. My whole aesthetic rests on discovering what's there and trying to discover what it all means in terms of relating to my own experience in the world of objective reality. I can't just dismiss these films as audio-visual exercises. They obviously mean something, and in a sense everything I've learned in life has been through my efforts to find out what these things mean."¹²

Belson refers again to his work as documentary, albeit a transcendental one, in his experience of making Samadhi. Samadhi is a Sanskrit word referring to the sought after state of being where the individual soul merges with the universal soul. Belson describes this journey in the following.

"It's a documentary of the human soul," he says. "The experiences which led up to the production of this film, and the experiences of making it, totally convinced me that the soul is an actual physical entity, not a vague abstraction or symbol. I was very pleased when I finally saw how concentrated, how intense, Samadhi is because I knew I had achieved the real substance of what I was trying to depict. Natural forces have that intensity: not dreamy but hard, ferocious. After it was finished I felt I should have died. I was rather amazed when I didn't."¹³

Another influential factor was that of Alchemy, the mystical intersection of the arts and sciences, which re-emerged after being suppressed by 'the materialistic and positivist spirit of the Nineteenth Century'.¹⁴ Alchemy, originally conceived to change ether and matter into the elusive philosopher's gold. By the time of its receding, the practice itself had transformed into a more religious, mysterious order of science, whose subject was the line between mind and matter. This included the realm of the imagination which was often aided by hallucinations, visions and dreams. The impact of alchemical symbolism and imagery is evident in Carl Jung's study "Psychology and Alchemy" (1944), as he became aware of the close similarity of alchemical imaginings and the dreams of his patients.¹⁵

This boundary between matter and mind, and the symbolism of fire and transformation was absorbed into the spheres of art and can be seen most directly in James Whitney's film Dwija (1973) which uses as its primary image that of an alchemical vessel. The term "dwija" is Sanskrit for 'twice-born' or 'bird', which alludes to the transformational goals of alchemy, often signified through the raven, the dove and ultimately, the phoenix. Lapis, another James Whitney film, also has an alchemical reference as it alludes to lapis lazuli, the philosopher's stone, produced through the intense metaphysical processes of sublimation and distilling, of fire and ether. The film Lapis, however, seems more transcendental and meditative than intensely mystical, as it can be best described as an exquisite, magical, revolving and ever-changing mandala (see fig. 4). The center of the circular mandala remains fixed at the center of the frame throughout the film, only diverging from this position towards the end of the film where it pulls apart into two pieces, almost like a splitting cell then converges back into the center. Or does this symbolize the zenith of the meditation experience, or the wavering of a transcendental state? Does this refer to the original primordial soup, as present in alchemy, the splitting 'germ-cell' that is the basis of evolution and the basis of each person's own conception?

In addition to the mystical, psychobiology of alchemy, there were evolving theories from microbiology and genetics which were also making an impact on the individual's interpretation of the world and the artists' imagination. Finding minute colonies of organisms verified that worlds beyond naked-eye vision existed. It also spurred thoughts

regarding cellular memory, the possibility that old primal memories were encoded still in our cells.

Len Lye, a pioneering painter, animator, sculptor, and writer, was deeply interested in these 'old brain memories'. In fact a section of his book, Figures of Motion, is called "Gene-Deep Myth"¹⁶. Lye, who was native to New Zealand, had from his early years a deep appreciation of, or fascination with, aboriginal, or primitive art, which he saw in the museums in Australia and from his experience of living with the Samoans. Their rich visual culture further cultivated his propensity for abstracted imagery and he learned native techniques, such as batik, that took a permanent place in his repertoire of skills. His first film, Tusalava, was inspired by the twitching movements and forms that he imagined, based on his reading of such a creature, the 'witchetty grub', an Aboriginal deity, and a ritual dance associated with it (see fig. 5). As Lye found out much later, the moving image that he had created of this organism and its actions, were oddly like the image and behavior of a macrophage, a sort of antibody. He attributed this to the idea of 'old brain memory', which could, somewhere in the inner, untouched recesses, hold memories of existence as an early, primordial cell. These memories could manifest themselves in his imagery, especially as Lye worked very instinctively. "...if my grub was entirely based on my unconscious brain mode of doodling, then my symbol for what turns out to look like an antibody would be pretty nearly a *direct* (his italics) transposition of the chemistries of genetic information, as would be the needle-tongued 'phage."¹⁷ Thus Lye concluded that the image of the macrophage was perhaps a 'memory' stored in the chemical brain; a memory that was beyond his actual experience, but rather a part of his genetic experience.

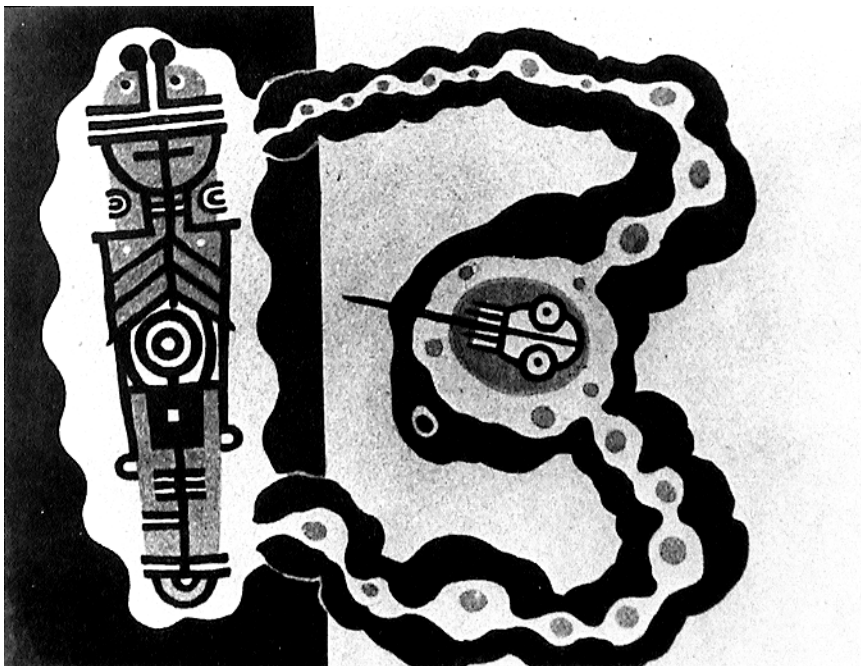


Fig. 5. Still from
Len Lye's Tusalava
Courtesy of The Len
Lye Foundation, 2003

Tusalava, which was completed in 1929, gets its title from a Samoan term translated as “all the same”, or which Lye interpreted to mean ‘that everything eventually comes full circle’.¹⁸ This was Lye’s first film and was painstakingly drawn and shot image by image. The film had no sound track, as that was a new and unaffordable technology, and so it was accompanied by live music.

Lye’s techniques and work with animation were based on instinct and creativity, both of an artistic and technical nature. The high cost of materials motivated him to find new methods of creating imagery such as to paint and etch directly on the film so that there was no camera required and no film development costs. This technique he dubbed “direct film”, and like a few others during that time, he saw it as a new (which it was) and unique (which it wasn’t) process. However, Lye’s philosophy of life and art seemed to transfer directly onto the film as we see lively dots and spirals, brilliant colors and bouncing rhythms. Scratching through the celluloid film surface was the technique Lye used to create the imagery of his film Free Radicals, first in 1958 and then revised in 1979 (see fig. 6). This method was completely intuitive as Lye had no real indicator as to where one frame ended and the next began. He refers to this film, and Particles in Space (1967-1971) as his “particle films”, and again alludes to the “old brain of our primal origins” which we carry in our “vestigial cells”:

“I believe such genetic information about historical stages in evolution is carried simultaneously with organic information, such as information about antibodies, protein structure, and cells as they exist now. Symbols of the past and present can be imbued with this truth of evolution which our cells carry. Among these myriad of truths are those connected with energy – the stuff out of which we came, and out of which we are. Maybe the ‘particle’ films Free Radicals and Particles in Space are transpositions of such information, or at least give the viewer a feeling of mysterioso about such eternal magic.”¹⁹

This magic and energy is characteristic of Lye’s films, but has a particular vibrancy and individuality in Free Radicals.



Fig. 6. Still from
Len Lye’s Free
Radicals
Courtesy of The Len
Lye Foundation, 2003

Another aspect of abstract animation, found in Lye's films, and personified in the work of Oskar Fischinger, is what I refer to as the empathy of the body in kinetic gestures. Just as we 'feel' the tension building in a phrase of classical music, as horns repeat and gain strength, finally releasing the tension in the crescendo of cymbals, we can feel the lyrical swoop and swish of a form in a non-objective work, such as one of Fischinger's black and white "Studies", or the hold and release of dots from a plane, as in Larry Cuba's 3/78 (Objects in Transformations).



Fig. 7. Original drawing from Sara Petty's Furies
Courtesy of the artist

This bodily experience created by moving forms is composed graphically in time and space to engage and transport the viewer, much like the experience of music. This is wonderfully apparent in the lyrical, visually stunning film Furies (1977) by Sara Petty (see fig. 7). As Petty recounts, this animation grew out of her "...desire to see images, morph, animate and vibrate with pastel texture. Furies, inspired by the playful wrestling of two felines, expresses the essence of the energy - the tumbling, twirling, leaping, and dashing - through the masterful engagement of line, color, motion, rhythm and time(see fig.8).



Fig. 8. Still frame from Sara Petty's Furies
Courtesy of the artist

“I had begun a film of a spider making webs into which I could animate designs, however,” she reveals, “I had these two Rex cats that moved in such fascinating movement patterns in sculptural form, that I couldn't resist making this film which became Furies. They moved in unison, then out of sync - at first elegant and then hilarious.”

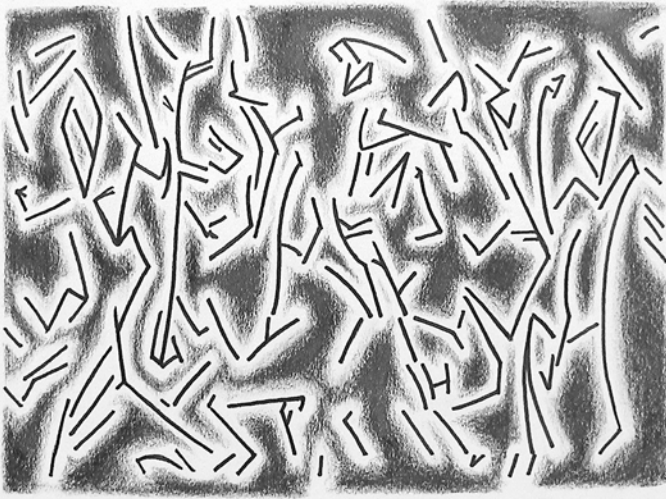
We, the viewer are carried along with the two spirited beasts, in essence becoming a third member of the playful brawl, as we get a visual and, through physical empathy, an inner experience of their feline dynamics.

Petty, who came to animation from the disciplines of painting and design, “saw animation as an opportunity to present a sequence of images transforming from one to the next in a continuous metamorphosis.”²⁰ This idea was further developed upon experiencing the work of Oskar Fischinger as she was “deceived by the overall simplicity, but found that the imagery stayed with me. Rather than overall transformations from one to the next, he used simple shapes to manifest patterns of complex movement. This concept afforded new possibilities when combined with my original approach.”²¹ It should also be noted, as an interesting aside, that one of the abstracted animated images that made a huge impression on her, as a child, was the “electronic vibration” that the Blue Fairy’s magic wand made when it transformed Pinocchio into a real boy. She later discovered that Oskar Fischinger had created this ‘effect’ for the film.²²

Preludes in Magical Time (1986) is referred to as ‘preludes’ as it was a collection of scenes which were animated for a longer film entitled Picture Window. Like Furies, Preludes in Magical Time is completely hand drawn, frame by frame. The imagery alludes to a window and curtains dancing in a breeze, which creates a structural element throughout the animation, as it drifts and unfolds into completely non-objective forms. Shapes morph and flow(see figs. 9, 10). Petty describes the piece as follows:

“This is a variety of scenes bound together by a soundtrack of Bach preludes, edited by sound editor Elizabeth Bartfai. Included are scenes of a geometric still life that transforms as if in time lapse, a cycle of wind entering through a window, strange movements of light upon a table top, images of crazed, crackled glass, or fragmented stained glass windows.”²³

Amazing ‘wipe’ effects, almost like pages turning, or quadrants of moving images being revealed in time accent the richness and variety of imagery. Lines dash around geometric forms, and solid sculptural forms emerge out of planes of color. The play of design, color and movement evokes the essence of a journey through the imagination, prompted by the play of light and wind through an open window.



Figs. 9 and 10. Original drawings from Sara Petty's Preludes in Magical Time
Courtesy of the Artist

From where does this imagery and motion, this wonderful voyage come? Petty elucidates:

“The peculiar sculptural forms, reminiscent of abstract sculptures, arose from a dream in which there was a deep undersea library. I swam deep to lower levels of huge rooms to discover large drawers containing hundreds of ancient enigmatic metal pieces. The pieces were made of cloisonné, and they each fit together with any other piece in a specific way to each particular pairing.... Once paired, the couple could be turned over to reveal a different visual puzzle-like relationship. It mimicked psychological complexities of humans, but it was a giant collection with a long lost explanation of its divination possibilities.”²⁴ (see fig. 11).

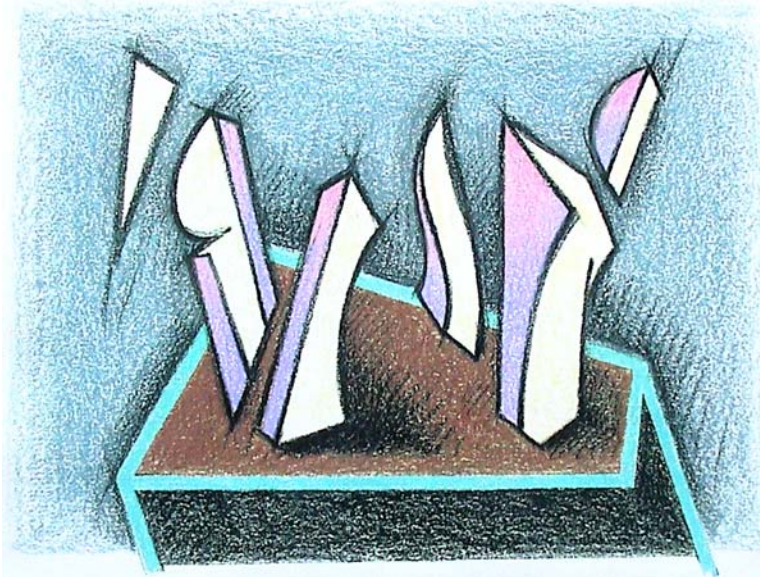


Fig. 11. Original drawing from Preludes in Magical Time, by Sara Petty
Courtesy of the Artist

This ability to capture the essence through movement, rather than the re-creation of the actual object or situation is also apparent in the work of Larry Cuba. One of the pioneers in computer animation, Cuba uses algorithms to research patterns and harmonies. As he explains:

“I’m more interested in figuring out *why* the image of the tree or a flower, appeals to us. It’s like music. What is the underlying structure, the essence, which makes it harmonious or evokes this harmonious feeling? There’s some combination of regularity and randomness, and to figure that out and abstract that essence is more interesting to me than just trying to make it look like something that we already know.”²⁵

His use of the computer completely native to the ‘language’ of computers; the images are a result of mathematical phrases, as he is working solely with algorithms to create movement and form. There are no optical effects, cinematic transitional devices, or special filters to conjure or embellish the imagery. This can be seen clearly in his three films, 3/78 (Objects in Transformation), Two Space, and Calculated Movements (see figs. 12, 13).

Cuba’s creative process does not include the pre-visualization of the images or image sequences. These are revealed through the course of the research, but his approach is not based on random trial and error either. Instead, as he describes:

“There is logic behind the original structures that I start with, so this idea of an essence that I was trying to express is not a particular thing that you could describe in words. It was not an image that I had in my mind that I was trying to recreate but it was a part of this ongoing research process where the essence is the connection between this underlying structure and the resultant images.”²⁶

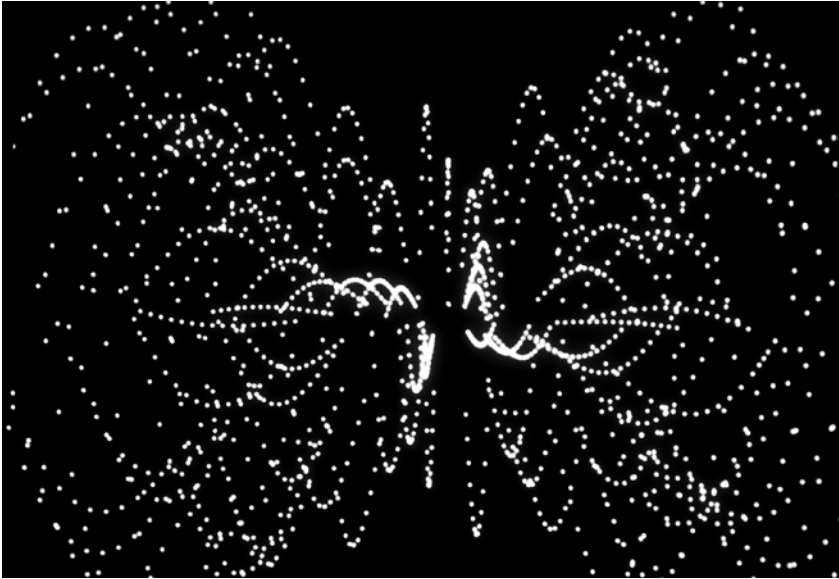


Fig. 12. Still frame from Larry Cuba's 3/78 (Objects in Transformation)
Courtesy of the artist

The significant and precedent setting film, Pas de Deux, by Norman McLaren, inspired Cuba's approach, of creating forms that were the results of structure and movement. In this film, from 1967, we see two ballet dancers whose forms are outlined due to the oblique angle of the lighting. The filmed dance has been slowed down and the images have been multiplied, but with a delay, so that the dancers' movements seems to trace a path through the dark space, creating forms and visual gestures with their bodies. Shot in black and white, the subject of the film becomes the essence of the movement and the forms created by the choreography of the dancers. It was this idea, of form being derived from movement, that inspired Cuba to create his algorithmically produced "graphic events".

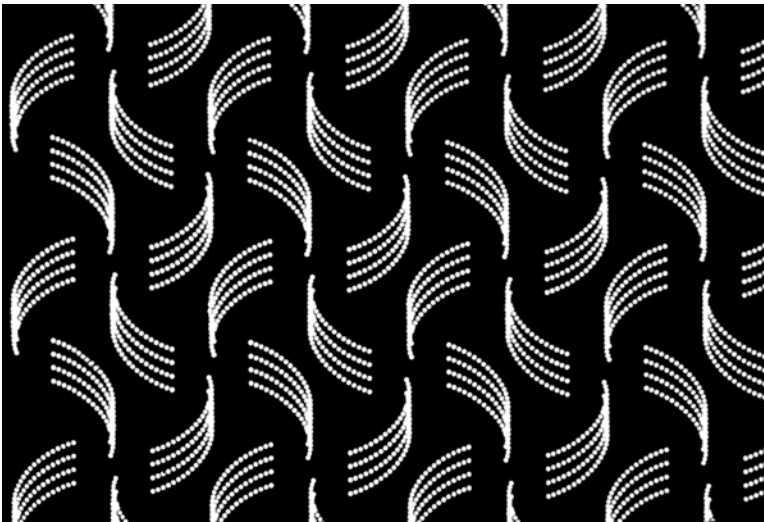


Fig. 13. Still frame from Larry Cuba's Two Space
Courtesy of the artist

Another aspect of this inspiration, which unmistakably connected it to his implementation of the computer, was that the imagery of Pas de Deux was clearly mathematically defined. There were the sequence of images, the line of movement that they created, the number of frames (24 per second), the slowing down of the film and the amount of delay needed to create the visual effect – all of this had to be worked out. For Cuba, whose interest was leaning to computer generated and choreographed movement, this was significant, as he describes as follows:

“So there was this connection between visual movement across the screen and some actual increment of time, which the other copies were shifted out of phase in time. And by adjusting these parameters you got different effects. So McLaren was actually playing with numbers, and in one of his interviews about this he said, ‘It’s all about numbers’. It was that numerical relationship, which was phasing and the connection between that and the visual effect, which got me interested in this mathematical, algorithmic approach. That was one early inspiration.”²⁷

Another inspiration, which must be mentioned, was the work of John Whitney, which Cuba had not yet seen but had read about, in Expanded Cinema. Still a student of architecture, Cuba had taken an early class in Fortran programming, which had left him curious but not inspired, as the goal of the class was geared more towards ‘practical matters’ such as computing grade points averages and did not venture into graphics. Whitney’s work was his first exposure to computer animation and reassured him that his vision of using a computer to create moving imagery was possible. He enrolled in CalArts, in Valencia, California and continued a dialog with Whitney who lived nearby in Pacific Palisades, which eventually led to Cuba working with Whitney, as his programmer, on the elegant and lyrical film Arabesque (1975) (see fig. 14).

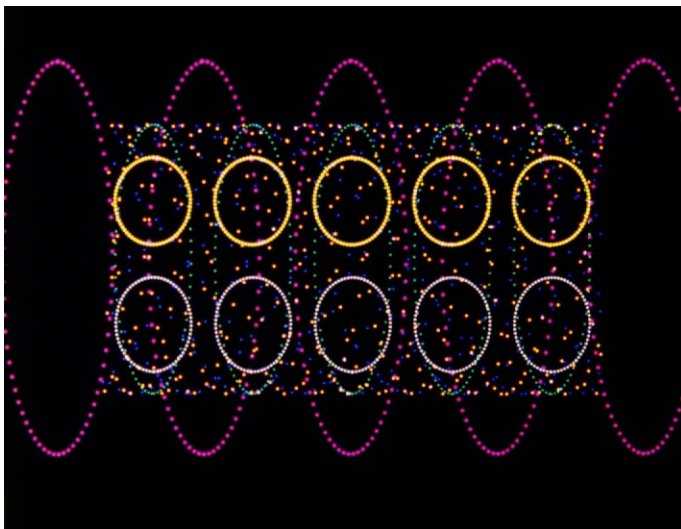


Fig. 14. Still frame from Arabesque, by John Whitney, Sr. Courtesy of The Estate of John and James Whitney and The iotaCenter ©2003 All rights reserved

Ying Tan is another visionary animator using the contemporary meta-tool of the computer, although instead of algorithms she is making use of the sophisticated software available to create worlds invoked by imagination and contemplation. Tan acknowledges that her work has a connection to the spirit and form of Belson's films, (she worked with him on his film Bardo) but her films are definitely her unique spirit and vision. This is evident in her film Mi Vida (My Life) from 1999, which has a definite allusion to the cosmos and evoke a meditative state.

My Life begins with a dark sphere, or perhaps emptiness, in a misty space. From this mandala-like space come a stream of objects, spheres and twig-like forms. Spheres are encased in light and cloud-like mists, and revolving planes of clouds.

A related film, Un Albor (Dawn), also from 1999, uses similar imagery, but has more of a sense of space and change. A vortex of light, sometimes alluding to shimmering water, is a key element; air, light and water create an ephemeral glimpse into the inner experience of time and light. Like Mi Vida (My Life), Dawn is inspired by the poems ('rimas' or rhymes) of Gustavo Aldolfo Bécquer, a Spanish poet born in 1836 in Seville. A translated excerpt from one of his poems, Rima VXII, expresses this transitory state of dawn:

"First is a tremulous and vague dawn,
ray of anxious light that cuts the sea;
soon it sparks and it grows and one dilates
in ardent explosion of clarity.

The brilladora fire is the joy;
the afraid shade is the grief..."²⁸

Her most recent work, Like a Swarm of Angry Bees, screened in the Siggraph 2002 Electronic Theater, and demonstrates a wonderful ability to conjure up meaning using non-representational form (see fig. 15). Her primary interests, as seen in her other earlier films as well, are "poet sonic/visual synchronization, and aesthetic expression of 3D graphics differ from a realism approach".

As she explains, "Perhaps my thoughts regarding visual style for this piece were toward more gestural than concrete, something stays with me from practicing Chinese ink painting in my earlier forming years. That is somewhat aligned with T.M. Turner's painting and Belson's film."²⁹

Like her other films, her medium is the computer, but her work is not about technology – it is about being aware.

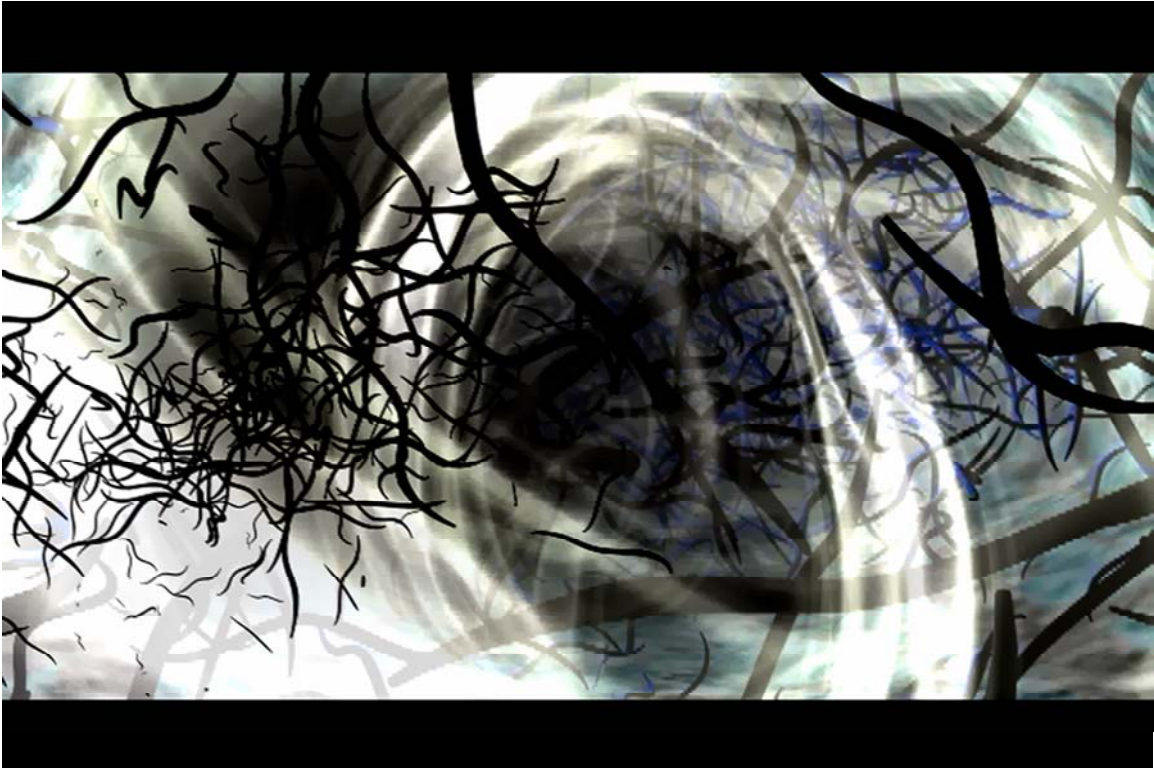


Fig. 15. Still frame from Ying Tan's Like a Swarm of Angry Bees, Courtesy of the artist

Conclusion

As should now be evident, the content available to abstract animators is unlimited, as there are many ways of expressing the numerous experiences in the mental and spiritual plane. The premise of the animation may not be obvious, as recognizable objects and storylines are not adequate in the conveyance of these ideas. Instead, a different set of expectations should be carried into the screening room with the viewer, an openness to experience and a willingness to implement the abstract domain of our visual language. We are given access to the inner world of the artist, and their interpretation of this realm; the corporeal is no longer meaningful.

The vast territory now on the palette of the artist, ranges from mystical experiences, to the visualizations of mathematical events - everything.

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